

## CLAIMS

1. An apparatus for evaluating the deterioration condition of a catalyst of an internal combustion engine by forcedly setting an air/fuel ratio upstream of a catalyst provided in an exhaust system of an internal combustion engine to a rich condition or a lean condition on the basis of a detected value of oxygen concentration detection means downstream of the catalyst in the internal combustion engine and by evaluating an oxygen storage capacity of the catalyst from the detected value of the oxygen concentration detection means,
- wherein the oxygen concentration detection means downstream of the catalyst reversely outputs a detected value thereof from a lean condition to a rich condition or from a rich condition to a lean condition, and reverses air/fuel ratio control so that the air/fuel ratio upstream of the catalyst becomes a lean condition or a rich condition when an integrated value of an amount of oxygen stored in the catalyst or an integrated value of an amount of oxygen released from the catalyst after a predetermined timing has reached a predetermined value.
2. The apparatus for evaluating the deterioration condition of a catalyst of an internal combustion engine according to claim 1, wherein the predetermined timing is a timing at which the oxygen concentration detection means downstream of the catalyst reversely outputs an output thereof from a lean condition to a rich condition or from a rich condition to a lean condition, and the integrated value of the amount of oxygen

stored in the catalyst or the integrated value of the amount of oxygen released from the catalyst is an integrated value of an intake air volume of the internal combustion engine.

- 5     3.     The apparatus for evaluating the deterioration condition of a catalyst of an internal combustion engine according to claim 2, wherein the integrated value of the intake air volume is changed for each load region of the internal combustion engine.
- 10    4.     The apparatus for evaluating the deterioration condition of a catalyst of an internal combustion engine according to claim 1, wherein the predetermined timing is a timing at which the air/fuel ratio upstream of the catalyst is reversed from a rich condition to a lean condition or from a lean condition to a rich condition, and the integrated value of the
- 15    amount of oxygen stored in the catalyst or the integrated value of the amount of oxygen released from the catalyst is an integrated value of an intake air volume of the internal combustion engine.